# 7. TRANSPORTATION

A safe and efficient transportation network is an essential component for the development of a well-functioning and accessible community, with land-use and transportation closely linked. Informed and thoughtful transportation planning is an essential part of guiding development in order to preserve valued features of the community while achieving and enhancing community goals. Chichester's transportation system and its connections to the regional and state network provide access to the goods and services that residents and commerce require.

The existing transportation network has had a profound influence on the location and development of land uses throughout the town. Development trends in Chichester has been profoundly influenced by the two arterial state highways US 4/NH 9/US 202 NH (US 4) and NH Route 28. Main Street, the other main travel corridor, has traditionally served as the locus of community activity and this plan envisions this function becoming predominate again rather than acting as a bypass or short cut between NH 28 and US 4.

Main Street contains most of the community's historical buildings, municipal facilities, and the Chichester Central School. Intermittent commercial development along US 4/NH 9/US 202 (Dover Road) and NH 28 form the basis of Chichester's economy. The tension between allowing unrestricted access to the main highways as an engine of economic development, and the need to maintain the capacity of these arterial highways to carry traffic through the region will continue to shape land use debates in the future. Preserving and enhancing the ability of these roads to carry through traffic, while providing safe

# **CHAPTER VISION**

Promote the continued improvement of roads in Chichester; encourage a transportation system that will meet the mobility needs of all local residents by providing for the efficient movement of people, goods, and services within Chichester and throughout the region; maintain a commitment to the rural and historical character of the community; and in coordination with the New Hampshire Department of Transportation provide a well-maintained and safe transportation system that meets the functional and aesthetic needs of the community, in a cost-effective manner.

access to commercial establishments, affects the quality of life of Chichester's residents and the economic vitality of the community.

Due to the financial commitment required for the improvement and maintenance of an adequate transportation system and the direct relationship between land use patterns and traffic circulation, the identification and analysis of current transportation needs is crucial to the orderly accommodation of growth and development. This section of the Master Plan is intended to provide such an analysis, while also enabling the Town to fully participate in all levels of transportation planning - local, regional, state and federal.

### **RESULTS OF COMMUNITY INPUT**

With regard to Chichester's transportation network, residents are highly concerned for the safety along US 4 and NH 28, specifically with any intersecting roads. Main Street was also mentioned for high speeds, lack of pedestrian infrastructure (sidewalks), and for the intersections with US 4, NH 28, and with Center and Canterbury Road.

**Community Survey Question #30:** Should the town develop a long-term plan to pave the remaining Class V (town maintained) gravel roads?

Opinion	Percentage
Yes	33.3%
No	39.8%
No Opinion	26.9%

**Community Survey Question #31:** In your opinion, what is the general, year-round condition of the roads you travel on in Chichester?

Condition	Percentage
Good	45.6%
Fair	43.9%
Poor	9.4%
No Opinion	1.2%

**Community Survey Question #32:** Please rate the following challenges to transportation in Chichester for town-maintained roads.



Community Survey Question #33: Main Street from US 4 to NH 28 is currently classified as a Legislative Class II State Highway maintained by NHDOT. Would you be in favor of converting Main Street to a Class V Local Road that would grant responsibilities to the town?

Opinion	Percentage
Yes	32.4%
No	54.7%
No Opinion	12.9%

# June 12, 2019 COMMUNITY VISIONING SESSION

The transportation discussion at the Visioning Session focused mostly on concerns regarding US 4. Some of the issues identified were:

- Support for eliminating truck passing lanes on US 4 as one factor that contributes to speeding through the corridor;
- Interest in designating US 4 as a divided highway to eliminate left turns in order to reduce the number of crashes;
- Support for both increasing and limiting of driveway access permits along US 4 and NH 28;
- Concern with the diversion of traffic from Main Street to other roads such as Bear Hill, Ricker and Deer Meadow to avoid Main Street and NH 28 intersection during peak hours; and
- Opportunities to use traffic calming techniques on Main Street that would promote more of a Village Center. One approach discussed was changing Main Street from a state maintained Class II road to a town maintained Class V road.

Other concerns expressed by attendees focused on support for the Suncook Valley Rail Trail connection through Chichester and support for demand response services rather than a fixed route system as part of a larger intercity transit network.

### PAST COMMUNITY PLANNING STUDIES

### COMMUNITY DESIGN CHARETTE, 2014

Plan NH led and prepared a report for a Community Design Charrette entitled "A Village Center, Again." Plan NH brought a team of design professionals to work with the citizens of Chichester with the intention of addressing community concerns with Main Street. The charrette attempted to address the difference between the high volume commercial corridors along the two major state highways that run through the town (US 4 and NH 28) and the 2.5 mile historic Main Street Corridor. Main Street was once the focus for nearly all the communities social and commercial activity in town, but now functions primarily as a bypass between US 4 and NH 28. The identity of the traditional heart of the village was fading and the applicants sought ideas on how to preserve and restore some of its past vitality.

The following observations were made by residents of the Town in regard to the Main Street Corridor:

- High traffic volumes including trucks cutting through.
- High traffic speeds with many motorists taking sharp turns at unsafe speeds.
- Beautiful scenery. This scenery remains intact in part due to the benevolence of landowners of large tracts of land.
- Unprotected historical and cultural resources. No demolition review process.
- Dangerous conditions were perceived around the Chichester Central School, especially during school events.

The attendees of the Charette listening sessions indicated the outcomes they would like to see for the Main Street Corridor:

- Slower traffic.
- Less traffic
- The protection of scenic & cultural resources along Main Street.
- Pedestrian crossings.
- Beautification of the area around the Grange Hall.
- Make roads including Main Street more bicycle friendly.

While the Charrette team's tranportation related recommendations have not been implemented to date (see the Land Use Chapter for a summary of Town Center zoning changes approved at 2019 Town Meeting), the intersection of NH 28 and Main Street, also known as Parade Corner, has been added the New Hampshire Ten Year Plan with construction currently scheduled for 2025.

### **ROUTE 4 CORRIDOR STUDY, 2004**

The Planning Board, in coordination with CNHRPC, sought funding through NHDOT Special Studies program in 2002 to examine of the US 4 corridor. Completed in 2004, the Route 4 Corridor Study provided input into the proposed improvements to the Main Street/Horse Corner Road/US 4 intersection, addressed land use/zoning issues, and developed recommendations for potential improvements to US 4.

A series of short, medium and long-term recommendations were developed as part of the study. The land use/zoning recommendations included the development of the Commercial Village zone in the vicinity of the Main Street/Horse Corner Road/US 4 intersection, modifications to the special exception criteria within

the zoning ordinance, and the development of future performancebased zoning standards related to access management.

Potential projects identified along US 4 in Chichester included improvements to the Smith Sanborn/Cross Road intersection, changes to the lane configurations at the King Road intersection, and the potential installation of a traffic signal at the Bailey Road/Trap Road/US 4 intersection if warranted due to increased development on Bailey Road. The long-term study of the US 4 corridor from I-393 through Epsom was also proposed.

### **ROUTE 28 CORRIDOR SAFETY STUDY, 2008**

In 2008, CNHRPC and Lakes Region Planning Commission were awarded funding to conduct a safety study along 24 miles of the NH Route 28 Corridor from the Alton traffic circle through Barnstead, Pittsfield, Chichester and Epsom. The intent of the NH Route 28 Corridor Safety Study was to assess current conditions, identify potential safety improvements, assess potential future safety and land use issues, and outline practical land use strategies that can be implemented at the local level. The services of Vanasse Hangen Brustlin, Inc. (VHB) were used in the development of conceptual and pre-engineering safety improvements. VHB staff provided assistance in the prioritization of safety concerns, identification of near-term and long-term improvements, the production of project specific graphics, and the development of preliminary safety improvement cost estimates.

#### **SUNCOOK VALLEY TRAILS PLAN 2019**

The 2019 Suncook Valley Trails Plan was a regional effort among local residents, officials, and trail user groups from the five lower Suncook Valley Towns of Pittsfield, Epsom, Chichester, Pembroke and Allenstown to determine the feasibility of developing recreational trails along sections of the former Suncook Valley

Railroad. Representatives from Chichester's Parks and Recreation Commission, Conservation Commission, the NH Trail Dawgs Snowmobile Club, and interested Town residents met with CNHRPC to discuss recently completed municipal trails projects such as the Carpenter Memorial Park Perimeter Trail and to determine the Town's future trails priority projects.

The Chichester meeting that contributed to the Suncook Valley Trails (SVT) Plan described the overall future trails priority of developing a Main Street Corridor Community Trail System for fourseason usage to accommodate a wide variety of users. Within this overall project goal's geographic area, individual priorities emerged, such as rehabilitating the Marsh Pond Loop Trail behind the Fire Station, pursuing a Depot Street connection to Thunder Bridge and the former Suncook Valley Railbed for a regional multi-use trail with other Suncook Valley communities, and connecting Carpenter Park to the Elementary School. Several other trails ideas emerged as well and are documented in the SVT Plan.

The next steps for Chichester include establishing a Town Trails Committee or equivalent, choosing a trails project to complete that will bring high value for low cost, determining funding options, working with landowners and the NH Trail Dawgs on trails usage and easements, and promotion of the trails.

### **EXISTING TRANSPORTATION NETWORK**

A key component in planning for future transportation improvements in a community is to carry out a complete inventory of the existing transportation infrastructure serving the town. Chichester's transportation network is dominated by US 4/NH 9/US 202 (US 4) and NH Route 28, both of which are the responsibility of the NH Department of Transportation. However, there are several

other roads which are important to the overall transportation network, especially Main Street and Horse Corner Road.

#### STATE HIGHWAY CLASSIFICATION AND FUNDING

The State Aid classification system, which is identified by NH RSA 229:5 and 229:231, establishes responsibility for construction, reconstruction, and maintenance as well as eligibility for use of State Aid funds. This classification system also provides a basic hierarchy of roadways.

Of the seven possible state classifications, Chichester's roads fall into five of these: Class I, Class II, Class V, Class VI and private roads. Chichester's road system is typical of most New Hampshire towns, in that the most mileage is accounted for by Class V roads. The Table 7-1: State Legislative Classification displays roadway mileage by classification. The road classifications are also shown in Figure 7-1.

#### **CLASS I TRUNK LANE HIGHWAYS**

Class I highways consists of all existing or proposed highways on the primary state highway system, except portions of the highways within the compact sections of cities and towns. The state assumes full control and pays costs of construction, reconstruction and maintenance of its sections with the assistance of federal aid. In Chichester, US 4/US 202/NH 9 and NH 28 are Class I highways.

Class	Mileage	Percent of total		
Class I: State Aid Highways	7.43	13%		
Class II: State Aid Highways	3.88	7%		
Class V: Rural Highways	39.19	69%		
Class VI: Unmaintained Highways	3.36	6%		
Private Roads	3.07	5%		

**Table 7-1: State Legislative Classification** 

Source: New Hampshire Department of Transportation

#### **CLASS II STATE AID HIGHWAYS**

Class II highways include all highways on the secondary state highway system, except portions of the highways within the compact sections of cities and towns, which are classified as Class IV highways. All sections improved to the state standards are maintained and reconstructed by the state. All other sections must be maintained by the city or town in which they are located until brought up to state standards. The same applies to bridges on Class II highways. In Chichester, Main Street, and portions of Canterbury Road and Horse Corner Road are Class II highways.

#### CLASS V RURAL HIGHWAYS AND BLOCK GRANT AID

This classification consists of all traveled highways that the town has the duty to maintain regularly. The state provides funding to towns for road maintenance on Class IV and V roads in the form of Highway Block Grant Aid. Table 7-2 shows the Block Grant Aid Chichester has received over the last five State Fiscal Years (SFY). These funds are distributed by the State of New Hampshire on a yearly basis with partial disbursements made four times a year. The payments are made as follows: 30% in July, 30% in October, 20% in January and 20% in April with unused balances carrying over. The funds come from a portion of the total road toll and motor vehicle registration fees collected by the State. The funds can only be used to fund or match funding for constructing, reconstructing or maintaining Class IV and V (town maintained) highways as well as equipment for maintaining local roads.

The funds are allocated from an annual apportionment (State Fiscal Year) of not less than twelve percent (12%) of the total highway revenues collected from the preceding year. Half of that total apportionment is distributed based on population and the other half is distributed based on Class IV and V road mileage. This comes

Table 7-2: Chichester Highway Block Grant Aid payments, State FYs 2016-20

Block	State FY				
Туре	2016	2017	2018	2019	2020
Α	\$76,734.26	\$78,683.99	\$80,826.29	\$81,930.05	\$83,209.96
SB 367	\$10,421.34	\$10,784.32	\$10,850.84	\$10,966.65	\$11,097.76
Total	\$87,155.60	\$89,468.31	\$91,677.13	\$92,896.70	\$94,307.72

Source: New Hampshire Department of Transportation

out to approximately \$1,200 for each mile of Class IV and V highway and about \$11 for each person.

A second apportionment of funds is allocated from a sum of \$400,000. The formula for disbursement is based on the value of property and roadway miles. The formula is designed to give the greatest benefit to municipalities with low property values (on an equalized basis) and high road mileage.

To ensure Chichester receives the proper allotment it is crucial to provide accurate information regarding Class IV and Class V road mileage to NH Department of Transportation (NHDOT). Highway Block Grant Aid distribution formulas do not take into consideration the condition of roads or the traffic on municipal roads.

On May 20, 2014, Governor Hassan signed into law Senate Bill (SB) 367, a policy bill that raised revenue dedicated to increased highway block grant funding to municipalities, increased municipal bridge aid, resurfacing and reconstruction of secondary roads, and completion of the I-93 expansion. The additional SB 367 revenue is included in Table 7-2.

#### **CLASS VI UNMAINTAINED HIGHWAYS**

Class VI roads are roads that are not maintained by the Town, may be subject to gates and bars, and normally consist of a gravel or dirt

surface. A Class V road can become a Class VI road if the Town has not maintained it for five years or more.

Under RSA 674:41, I(c), for any lot whose street access (frontage) is on a Class VI road, the issue of whether any building can be erected on that lot is left up to the Town Selectmen who may, after review and comment by the planning board and after a public hearing, vote to authorize building along that Class VI road, or portion thereof.

Even if the Board of Selectmen does vote to authorize building, the law states that the municipality does not become responsible for road maintenance or for any damages resulting from the road's use. The purpose of RSA 674:41, I(c) is to prevent scattered and premature development.

Back Road, Pound Road, Old Clifford Road, and an unnamed road from Harvest Road to US 4 are Class VI Roads in Chichester. Portions of Short Falls Road, Davis Road, and Ring Road are also Class VI Roads.

Class VI roads are an important component of a Town's transportation infrastructure since they provide access to lands for traditional, hunting, fishing and forestry activities as well as making up a portion of the twenty five (25) miles of existing snowmobile trails in the Town of Chichester.

### **FEDERAL FUNCTIONAL CLASSIFICATION SYSTEM**

The functional classification system identifies roads by the type of service provided and by the role of each highway within the state system based on standards developed by the US Department of Transportation. While the state aid classification system outlined above is the primary basis for determining jurisdiction, the following system is important for determining eligibility for federal funds.

Table 7-3 and Figure 7-2 provide details regarding the federal classification of Chichester's highways.

**Table 7-3: Federal Functional Classification** 

Federal Functional Classification	Mileage	Percent of total
Interstate Highways (I-393)	.08	0.14%
Principal Arterials (US 4)	3.83	6.73%
Minor Arterials (NH 28)	3.52	6.18%
Local Roads	43.07	75.64%
Unclassified (Class VI or Private Roads)	6.44	11.31%

Source: New Hampshire Department of Transportation

Recognition of the principal function that a highway, road, or street is intended to serve can reduce potential conflicts between land use activities and traffic movements. For example, from a theoretical standpoint, residential development should not be encouraged to locate along major highways due to the opportunity for direct land use/traffic conflicts. The need for direct access to residential properties causes numerous left turn and crossover movements as well as ingress/egress movements, all of which slow and/or interrupt the smooth flow of traffic, while substantially increasing the potential for accidents to both pedestrians and vehicles.

Generally, future development in Chichester should be encouraged to take place at locations where the primary road function is appropriate for the type of development proposed. As part of its Site Plan Review Regulations, the Planning Board should consider the functional classification of any road on which development is proposed to ensure that the proposed development is appropriate for the existing roadway function.

**Table 7-4: Chichester Bridges** 

Location	FSR	Structural Deficiency	Owner	AADT	Inspection Date	Yr Built/Rebuilt
Main Street over Sanders Brook	79.8	Not Deficient	NHDOT	6,397	Apr 2018	1931/2013
Depot Street over Suncook River	97.8	Not Deficient	Municipality	406	Jul 2017	1981
Bypassed Historic over Suncook River	NA	Not Applicable	Municipality	0	Jul 2017	1887
NH 28 over Perry Brook	99.0	Not Deficient	NHDOT	13,803	Apr 2018	1961
Kellys Corner Rd over Sanborn Brook	94.5	Not Deficient	Municipality	494	Jul 2017	1991
NH 28 over Sanborn Brook	99.0	Not Deficient	NHDOT	13,803	Apr 2018	1961
Webster Mills Rd over Sanborn Brook	99.8	Not Deficient	Municipality	581	Jul 2017	2006
Webster Mills Rd over Suncook River	95.7	Not Deficient	Municipality	581	Jul 2017	1981

Source: New Hampshire Department of Transportation

#### PRINCIPAL ARTERIALS AND INTERSTATES

These highways consist of interstates and some primary state routes that form the basic framework of the State roadway system. They primarily function as the main routes for interstate commerce and traffic. In addition, they also link major geographic and urban areas to economic districts of the State. Controlled Access is a designation adopted by NHDOT, the effect of which is to minimize the frequency of curb cuts, thereby controlling the amount of traffic crossing lanes and stopping on the road. US 4/US202/NH 9 is the only Principal Arterial in Chichester. The terminus of Interstate 393 is located partially within Chichester.

#### LOCAL ROADS

These roads and streets are used primarily to provide access to adjacent properties. This includes the vast majority of streets and roads open for public travel in Chichester.

#### **BRIDGE NETWORK**

Bridges are a key component of the highway system. Bridges are the most expensive sections of roads, and a lack of adequate bridges can create transportation bottlenecks, which are often difficult to remedy.

The New Hampshire Department of Transportation (NHDOT) maintains an inventory of all bridges in New Hampshire using Federal Sufficiency Ratings (FSR), a nationally accepted method for evaluating bridges. An FSR represents the relative overall effectiveness of a bridge as a modern-day transportation facility. With an FSR greater than 80 a bridge is generally accepted to be in good condition overall. A bridge having an FSR between 50 and 80 is eligible for Federal bridge rehabilitation funding. A bridge with an FSR less than 50 is eligible for either Federal bridge replacement or rehabilitation funding. These ratings are based on modern, federally accepted standards, and often historic bridges do not meet these standards.

NHDOT manages three bridge aid programs including State Aid Bridge which is state funded, SB 367 which is also state funded and the Municipal Off-System Bridge Rehabilitation and Replacement which is federally funded. Projects begin by the town submitting an application for a preliminary estimate or hiring an approved consultant to do the estimate. NHDOT determines a potential program and year of funds for construction, this process can take several months.

Table 7-4 shows the bridges in Chichester as listed on the 2018 NHDOT Bridge Summary. Structurally Deficient does not mean that the bridge is necessarily unsafe for use rather refers to a bridge with one or more deteriorated components whose condition is critical enough to reduce the safe load carrying capacity of the bridge.

Culverts, bridges 10 years or newer, and bridges 20 feet or less in length do not typically receive deficiency ratings.

Figure 7-3: Bridges by Ownership notes the location of the five (5) municipal owned bridges and the three (3) state owned bridges are in Chichester.

The status of the bypassed historic bridge over the Suncook River is not applicable. The maintenance of historic bridges as often an issue however, the NH Department of Transportation does inspect this bridge periodically.

#### TRAFFIC COUNT HISTORY

The Central New Hampshire Regional Planning Commission (CNHRPC) maintains an ongoing traffic count program for monitoring the region's transportation network. Each year CNHRPC offers to collect traffic data at up to ten (10) locations for each municipality. In addition, CNHRPC collects traffic count data for the New Hampshire Department of Transportation (NHDOT) in

accordance with federal guidelines under the Federal Highway Performance Monitoring System (HPMS).

Figure 7-4 displays the Average Annual Daily Traffic (AADT) volumes for 2010-2018, which are published on the NHDOT website at http://www.nh.gov/dot/org/operations/traffic/documents.htm. AADT is a basic measure of traffic demand for a roadway and represents the volume of traffic travelling in both directions. CNHRPC provides traffic count data to the NHDOT, who then calculates the AADT by applying correction factors to raw data to account for weekday and seasonal variations in traffic volumes. NHDOT also uses permanent counter locations to adjust data. There are two permanent locations in Chichester, one on NH 28 north of Bear Hill Road and one on US 4 east of Main Street.

Out of seven reoccurring and two permanent traffic data collection locations, only five of these locations have shown an increase in traffic volume between 2010 and 2018 while most locations have seen minor fluctuation in volumes.

#### **ROADWAY CONDITIONS**

Pavement condition data from 2016 was obtained from the NHDOT's Pavement Management Section for state-maintained (Class I and II) roads and is displayed in Figure 7-5. The pavement condition is rated based on the International Roughness Index (IRI), which is calculated directly from the average pavement roughness measured in the left and right wheel paths of roadways.

Because the NHDOT data is from 2016, most of the roads in fair condition may have been resurfaced including US 4, Main Street, Canterbury Road and Horse Corner Road (state portion). According to NHDOT's 2017-2019 resurfacing program NH 28 was scheduled for resurfacing in 2018. The overall condition of the road surfaces

on state maintained highways and roads within the Town of Chichester is very good.

On local, town maintained roads, surface conditions vary by location. Naturally, there are issues to be addressed in the town's road network, particularly due to the increasing costs of maintenance.

Chichester utilizes a Road Surface Management System (RSMS) developed by the Maine Department of Transportation to help prioritize road improvements and develop a transparent system for short, medium and long term improvements. RSMS is basically a methodology intended to provide an overview and estimate of a road system's maintenance costs.

In 2015 NHDOT, the University of NH's (UNH) Technology Transfer Center (T²) and all nine of NH's Regional Planning Commissions (RPCs) initiated a new Road Surface Management System under NHDOT's Statewide Asset Data Exchange System (SADES). The updated RSMS includes many changes to improve the quality, consistency, and efficiency of data collection and the overall value of the product to better guide municipalities with road maintenance.

### **MOTOR VEHICLE CRASHES**

Motor vehicle crash data from 2011 - 2015 was obtained from NHDOT, who receives the data from the Department of Safety for crashes with over \$1,000 in damage. The data represents roughly 80% of all crashes with over \$1,000 in damage that took place during this time period; the remaining 20% of crashes are not locatable based on the information contained in the accident reports. Locatable crashes that occurred in Chichester were reviewed and are summarized graphically on Figure 7-6 and in summary tabular form for the most frequent locations in Table 7-5.

It is reasonable to assume that a number of smaller accidents may also have occurred during this time period which did not require the intervention of the police department. Any accidents reported in Chichester are a cause for concern and should be monitored at regular intervals to determine locations where improvements are needed to enhance safety.

Most accidents occur on the three (3) busiest State maintained highways: US 4, NH 28 and Main Street. US 4 in Chichester has a has an excessive amount of accidents with 199 from 2011 to 2015 on a 3.8 mile stretch of highway carrying between 14,000 to 16,500 AADT. The recent modification to the layout of US 4 eastbound to reconfigure the travel lane into a center turn lane is the initial effort to improve safety along the corridor.

Improvements to the intersection of NH 28/Main Street/Depot Street (Parade Corner) are scheduled for preliminary engineering work in 2020 and construction in 2025 (see page 7.19 for a detailed discussion of the project), which should address the second highest accident intersection in town. The highest accident intersection of US 4/Main Street/Horse Corner Road should be evaluated to determine if low cost or operational modifications could be implemented to reduce the rate of accidents at this busy signalized intersection.

# **HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)**

The purpose of NHDOT's Highway Safety Improvement Program (HSIP) program is to achieve a significant reduction in fatalities and serious injuries on all public roads through the implementation of highway safety improvement projects. The process for which a project receives funding from HSIP for a roadway segment or intersection is highly dependent on data.

If data (history of crashes resulting in injuries or fatalities) warrants further examination a Road Safety Audit (RSA) is typically the next step. The RSA is a collaborative approach to review safety issues and make recommendations for improvements. A cost/benefit analysis is used to determine the best solution for improving safety at the road segment or intersection. CNHRPC assists towns in applying for HSIP funds and completing small scale RSAs that offer safety solutions.

Table 7-5: Crash Hot Spots 2011-15

State Maintained Highways	Number of Accidents 2011-2015
US 4/US 202/NH 9	199
NH 28	57
Main Street	43
Horse Corner Road (State segment)	3
Town Maintained Roads	Number of Accidents 2011-2015
King Road	9
Bear Hill Road	5
Horse Corner Road (Town segment)	4
Intersection Locations	Number of Accidents 2011-2015
US 4/Main Street/Horse Corner Road	36
NH 28/Main Street (Parade Corner)	10
US 4/King Road	5
Main Street/Canterbury Rd/Center Rd	2
Main Street/Library Corner	2

The severity of serious traffic crashes could be reduced through roadway improvements, where appropriate, such as adding turn or through lanes, adding or improving medians, implementation of access control measures to reduce the number and increase the spacing between curb cuts, installing traffic signals at significant commercial generators or intersecting streets.

### **COMMUTING PATTERNS**

Journey to work commuting data from the 2013-2017 American Community Survey 5-year estimates for Chichester were reviewed and displayed graphically in Figure 7.7. As is typical in most New Hampshire towns, the most popular transportation option for Chichester residents is the private automobile (81.3%), while (7.5%) of those employed worked at home, and 6.2% carpooled. This presents an opportunity and a potential untouched market for carpooling and the importance of broadband internet for telecommuters. More information on carpools and alternative modes of commuting can be found at www.commutesmartnh.org.

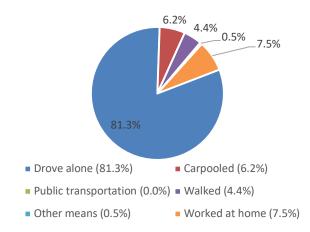


Figure 7.7: Means of Transportation to Work

Source: U.S. Census Bureau, 2013-2017 American Community Survey

Figure 7.8 shows that over 57% of Chichester's commuting residents travel distances to work in excess of ten (10) miles. This statistic highlights the importance of the arterial and collector road system that serves the Town. In all future planning decisions, at the local, regional or state level, Chichester should ensure that the functionality of these important routes is maintained and that future land-use and transportation decisions support the functional characteristics of Chichester's road network to ensure continued ease of access for residents and visitors to the Town.

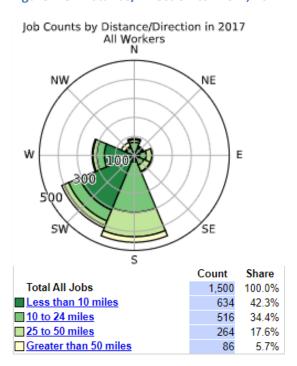


Figure 7.8: Distance/Direction to Work, 2017

Source: U.S. Census Bureau, Center for Economic Studies, OnTheMap Application

Figure 7.9 shows over thirty (30.1%) percent of the work force in Chichester commutes to Concord and nine (10.1%) commutes to Manchester. Other locations of mention include Hooksett, Pembroke, Nashua, Epsom, Pittsfield, Laconia, and Bedford. "All Other Locations" includes approximately 35.9% of commuters. In reviewing the raw data, the "All Other Locations" are widely distributed to many communities in New Hampshire and neighboring states.

Understanding the commuting patterns of the labor force in the community can assist in planning roadway improvements that will make important travel routes more efficient, safe, and promote economic growth in a sound and coordinated fashion. Similarly, local residential roads that are not suited for heavy commuter traffic should be identified and this "through traffic" should be minimized wherever viable alternatives can be provided.

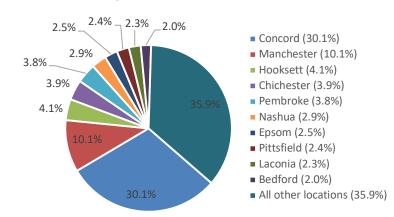


Figure 7.9: Place of Work, 2017

Source: U.S. Census Bureau, Center for Economic Studies, OnTheMap Application

### LAND USE AND TRANSPORTATION

#### **NEW COMMERCIAL AND RESIDENTIAL DEVELOPMENT**

New development is often phased over extended periods of time and the ultimate, as well as the immediate, impacts of development on traffic volumes and transportation systems should always be considered. The magnitude of new development obviously determines the traffic impacts that the development will have. Depending on existing roadway traffic volume, distribution patterns, and road condition, small scale as well as large-scale development can often have significant impacts on the surrounding roadway network. By requiring transportation/traffic impact studies for new developments of a certain size or for developments located in areas where significant transportation problems are known to exist, the Planning Board can effectively evaluate the scope of impacts associated with any new development. Through this kind of scrutiny, recommendations for project phasing, and developer participation in necessary improvements can be developed and problems of safety, congestion, and expensive upgrading of poorly planned roads can be avoided.

#### **ACCESS MANAGEMENT**

Access management involves providing (or managing) access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed. It is the practice of coordinating the location, number, spacing, and design of access points to minimize site access conflicts and maximize the traffic capacity of a roadway. Applicable opportunities for access management include possible connections between existing and future subdivisions, the consideration of shared driveways when possible, and consistent coordination and communication between the Town and NHDOT District 5 when

considering driveway access applications on State Highways. An option for improving communication is the development of a memorandum of understanding between the Planning Board and NHDOT District 5 that standardizes the communication between the Planning Board and District 5 staff during the consideration of each driveway access permit. In addition, more detailed access management requirements may be added to the subdivision and site plan review regulations as appropriate.

### **TRAFFIC CALMING**

Traffic calming on local roads can be a significant challenge. Lowering speed limits is a well-established method of improving pedestrian safety and other non-motorized modes of travel. The minimum speed limit a town can impose on town maintained roadways is 25 miles per hour based on an engineering study. Limits can be made lower at intersections (RSA 265:63) and in school zones (RSA 265:60). Traffic calming can involve road design techniques using active or physical controls (bumps, barriers, curves, rumble strips, etc.) and passive controls, such as signs and traffic regulations, to reduce vehicle speeds. Traffic calming measures foster safer and quieter streets that are more accommodating to pedestrians and cyclists and enhance neighborhoods and downtown environments. The potential benefits of traffic calming include reduced traffic speeds, reduced traffic volumes – by discouraging "cut-through" traffic on residential streets – and often improved aesthetic quality of streets. An example of some effective and applicable traffic calming techniques include:

**Speed Humps, Speed Tables, and Raised Crosswalks:** All of these techniques involve raising the height of the pavement in a more subtle fashion than with a speed bump, allowing vehicles to pass over them at the intended speed of the road, but preventing

excessive speeds and alerting drivers to the existence of nonmotorized users.

Chicanes or Medians: These devices effectively narrow road width and slow down traffic by placing a physical impediment either in the middle of the road (median) or on the side of the road (chicane). These traffic-calming devices lend themselves to landscaping and improve the visual experience for all users of the road, as well as reducing speeds. Both techniques can provide additional safety for crossing pedestrians. Medians may serve as a refuge by allowing pedestrians to cross one lane of travel at a time, while chicanes provided at crosswalks reduce the overall distance from one side of the road to another and slow down traffic at those crossings.

Narrow Lane Widths: A low-cost way of reducing speeds is to narrow the roadway lane through the use of edge lines and centerlines. A number of jurisdictions across the country have installed this type of pavement marking application to create 9 to 10-foot-wide lanes. Narrow lanes force drivers to operate their vehicles laterally closer to each other than they would normally be accustomed to. Slower speeds are a natural result.

Roundabouts: Gaining more popularity in New Hampshire, this is an intersection treatment that forces motorized traffic to slow down to speeds under 25mph in order to negotiate a center island that can be landscaped. Such speeds allow pedestrians to safely cross around the perimeter of the roundabout and cyclists to safely become a part of the circulating traffic.

#### **SCENIC ROADS**

A major component of a town's rural character can be its unpaved and scenic roads. These roads help to retain a sense of history and rural quality that Chichester's residents have indicated a strong desire to maintain. RSA 231:157 allows towns by a vote at town meeting to designate any road other than a Class I or II highway as a Scenic Road. A municipality may rescind its designation of a scenic road using the same procedure.

The effect of designation as a scenic road is that, except in emergency situations, there shall be no cutting of trees with a circumference of 15 inches at 4 feet from the ground or alteration of stone walls by the town or a public utility within the right-of-way without a hearing, review, and the written approval of the Planning Board. This law does not affect the rights of individual property owners; nor does it affect land uses as permitted by local zoning.

In recognition of the fact that the state law is not very stringent, the statute was amended in 1991 to allow towns to adopt provisions other than what is spelled out in the law. These additional regulations could include giving protection to smaller trees or by inserting criteria for the Planning Board to use in deciding whether to grant permission. RSA 231:157 is an important piece of legislation for the preservation of culturally important and scenic roads in Chichester.

# LOCAL, REGIONAL AND STATE PLANNING

#### CHICHESTER ROAD ADVISORY COMMITTEE

The Chichester Road Advisory Committee's charter currently states that its primary responsibility "shall be to develop a written Road Management Plan, or update annually any existing Road Management Plan, for the Town of Chichester. The Road Management Plan shall include short-term and long-term repair goals, and shall also identify, develop "best estimate" project costs, prioritize, and establish a schedule for any future roadway reconstruction projects or major repair/upgrading projects."

The committee meets monthly and works with the Road Agent assessing to maintain a detailed inventory of roads, road segments, their conditions, importance, and traffic counts. The Road Agent uses a computer database called the Road Surface Management System (RSMS), which allows the Committee to further assess the immediate and long-term needs for road repair. The committee uses the information to prioritize road projects and prepare plans to maintain and improve the conditions of town owned roads.

### REGIONAL TRANSPORTATION ADVISORY COMMITTEE (TAC)

The regional transportation planning process in the Central NH Region is driven by bottom-up community participation through the Planning Commission's Transportation Advisory Committee (TAC). The TAC is an advisory committee to CNHRPC, with its membership representatives ranging from municipal staff, such as town planners and road agents, to municipal officials, such as planning board members and selectmen. Chichester has historically been well represented on the TAC. CNHRPC and NHDOT work collectively to inform all members of the TAC regarding transportation at the local, regional and state level. The members act as liaisons between CNHRPC, municipal and state officials as well as the general public.

TAC Members provide input on transportation related issues and the needs of the local and regional communities in Central New Hampshire. This is done partially by assisting CNHRPC staff with the development of transportation related plans and programs.

CNHRPC staff also work with the TAC to solicit and provide guidance on local projects such as Bicycle and Pedestrian infrastructure planning and Road Safety Audits.

#### STATE OF NEW HAMPSHIRE TEN YEAR PLAN

The New Hampshire Ten Year Plan (TYP) identifies and prioritizes the critical transportation projects in New Hampshire in an ongoing

effort to address transportation needs at the local, regional and statewide levels. The TYP is updated every two years - allowing transportation priorities to be revisited, existing projects to be removed as appropriate and allowing new projects including, roads, bridges, transit, rail and aviation projects to be added.

With the previous TYP as a starting point, the Plan process includes input from individual communities, development of regional priorities from the Regional Planning Commissions (RPCs), numerous public hearings by the Governor's Advisory Commission on Intermodal Transportation (GACIT) and review and approval by the Governor and Legislature before it is adopted.

Performance measures and conditions such as pavement condition, traffic volumes, bridge ratings, congestion levels, safety issues, freight mobility, economic impacts, user surveys and available funding levels are considered in determining project need and prioritizing project implementation.

As part of CNHRPC's regional project prioritization process, CNHRPC develops a regional Transportation Improvement Plan (TIP). The TIP begins with the CNHRPC soliciting project requests from local communities, followed by an evaluation process by the Planning Commission's Transportation Advisory Committee (TAC) where new and existing projects are prioritized.

The Regional TIP update process gives a clear indication of the different transportation needs in the Central NH Region. Just as the TYP is established as the transportation project guide for the state, CNHRPC will utilize this regional TIP to plan for current and future transportation needs in the Central NH Region.

### **ACTIVE TRANSPORTATION**

#### BICYCLE & PEDESTRIAN INFRASTRUCTURE

Residents of Chichester value the rural and historic character of the town. Pedestrian facilities, such as paved sidewalks and gravel walking paths are valuable features for roadways with high volumes of traffic or high speeds. The primary purpose of sidewalks is to improve safety for pedestrians by separating them from travel lanes of roadways. In addition to this, sidewalks can also serve as a source of recreation for residents, a non-motorized mode of travel, serve to beautify an area, or stimulate economic activity in rural and village settings.

The only sidewalks in Chichester are located on US 4 centered on the US 4/Main Street/Horse Corner Road intersection. The sidewalks extend westward a distance of approximately 1,300 feet on both sides of the highway ending at the western limits of Camping World of New Hampshire sales area. The sidewalk extends easterly from the intersection on the north side of the highway approximately 2,800 feet to the entrance to the Great Meadow Campground while the sidewalk terminates on the south side less than 1,600 feet from the intersection.

The 2014 Main Street Charrette demonstrated the community's interest in providing pedestrian facilities along Main Street. However, the length of Main Street (2.5 miles) and the distance between public facilities along Main Street makes it challenging to develop pedestrian facilities along this corridor.

Similar to the provision of pedestrian infrastructure, planning for a bicycle network requires a different approach from that of motorized transportation planning. Bicyclists have different needs from those of motorists, including wider shoulders, better traffic

control at intersections, and stricter access management. NH 28 and portions of US 4 are important corridors for bicycling and have significant shoulders in most locations. These roads also experience high traffic volumes, high speeds and turning movements that create conflicts between vehicles and cyclists. Main Street has little if any shoulders over most of its length and any bicyclist would be forced to utilize the travel lanes along this historic corridor.

As the concern over air quality, traffic congestion, and other issues increases, the need and desire for a well-maintained and safe bicycle & pedestrian route system will continue to grow. By creating adequate local bicycle & pedestrian infrastructure, members of the community will have the ability to travel within Town for employment, education and recreational purposes without driving. Consideration should be given to adding pedestrian and bicycle facilities to town roads and when improving intersections to allow for safe access to existing schools and recreation areas in the community for non-motorized transportation.

### **SAFE ROUTES TO SCHOOL**

Safety at the Chichester Central School (K-8) was an issue of concern raised by residents in the 2014 Charrette. Safe Routes to School (SRTS) is an approach that promotes walking and bicycling to school. The development of a future SRTS Plan involves a method known as the 5 E's:

- Education Teaching skills on bicycle and pedestrian safety.
- Encouragement Producing enthusiasm through events and prizes.
- Engineering Developing safe infrastructure.
- Enforcement Deterring unsafe traffic behaviors.
- Evaluation Assessing existing barriers to biking and walking.

### **PUBLIC TRANSPORTATION**

The closest public transit service to Chichester is the Concord Area Transit System (CAT) in Concord. There are no stops near Chichester and no plans exist to extend transit services to Chichester at this time. Regional and interstate bus service is available at the Concord Bus Station on Stickney Avenue between I-93 Exits 14 & 15. As the median age increases in New Hampshire, there has been interest in the potential expansion of Concord Area Transit (CAT) fixed route service into adjoining communities and discussions regarding future inter-city bus connections along US 4. While not on the immediate horizon, the Town should consider supporting and participating in any future transit studies if they are undertaken.

The nearest park and ride lots are in the Town of Northwood to the east along US 4, and the I-93 Exit 14 Park and Ride located adjacent to the Concord Bus Station. The provision of a park and ride lot in Chichester should be included as an element of any future corridor or transit-related study.

The Mid-State Regional Coordinating Council (RCC) for Community Transportation supports a volunteer driver program that also serves the region's elderly and disabled populations. The primary purpose or these trips are for essential social services and medical appointments (including long distance medical rides). Currently, the Mid-State RCC's volunteer drive program does not charge for rides although donations are accepted.

#### **CLASS VI ROADS & TRAILS**

Across the State, many communities are beginning to look at Class VI roads as candidates for designation as Class A Trails. These roads have little or no development associated with them, are scenic, have no inherent liability concerns, public access is already allowed,

and also serve to connect large areas of open space, conservation, and/or agricultural lands. By reclassifying certain roadways that meet these criteria to Class A Trails, the community could be taking a step in creating a community-wide system of greenway trails. Unlike Class VI roads that the Town does not maintain, Towns, at their option, may conduct maintenance on Class A Trails. The Town of Chichester also has a number of recreation trails including snowmobile trails. Per the Community survey, sixty-eight (68) percent of respondents stated they would like to see further trail development on town-owned land.

It is important to stress that reclassification of Class VI roads to Class A Trails will not inhibit the access rights of landowners along the roadways. In the case of a Class A trail, landowners can continue to use the trail for vehicular access for forestry, agriculture, and access to existing buildings. However, under such classification, new building development as well as expansion, enlargement, or increased intensity of the use of any existing building or structure is prohibited by New Hampshire Statute. The Town and owners of properties abutting Class VI roads are not liable for damages or injuries sustained to the users of the road or trail.

Class VI roads are an important component of a Town's transportation infrastructure due to their rural character and potential recreational opportunities.

# TRANSPORTATION IMPROVEMENT PROJECTS

# NH 28/Main Street/Depot Street Intersection

Improvements to this intersection, known also as Parade Corner, are included in the New Hampshire 2019-2022 State Transportation Improvement Program (STIP) for preliminary engineering beginning in 2020, and in the Ten Year Plan 2021-2030 for construction in

2025. The intersection was included in the 2017-2026 CNHRPC Regional Transportation Improvement Plan (TIP) as the region's number one priority for that two-year TIP update process. The intersection should be realigned and would be suitable for either a traffic signal or roundabout. The current estimate for this project is \$1,675,260.

A concept envisioned by Vanasse Hangen Brustlin (VHB) in the "NH Route 28 Corridor Safety Study, August 31, 2009" and included in the "A Village Center, Again" Community Design Charrette adds a traffic signal and consolidates all of the Main Street legs so they intersect at one location opposite Depot Street. The solution would incorporate pedestrian signals as well as turn lanes on both NH Route 28 approaches. An access management improvement consisting of curbing across the Country Store frontage could better define the two drive openings on Main Street.

A second option included in the Charette proposes a roundabout to slow traffic on NH 28 while also allowing for improved pedestrian movement. The roundabout would also serve to act as a gateway to the Main Street area. In each option, a sidewalk could be added on the west/north side of Main Street to the Chichester Central School.

## US 4/US 202/NH 9 IMPROVEMENTS

The safety and operation of US 4 through Chichester has been a source of concern for many years. As noted in the review of past studies, a number of short, medium and long-term recommendations were made as the result of the 2004 Route 4 Corridor Study effort.

Subsequent to that study, improvements to the US4/Horse Corner/Main Street intersection were undertaken. In 2016, US 4 was modified at the King Road intersection to provide for a left turn lane into King Road. This was accomplished by converting one of the eastbound through lanes on US 4 to a center turn lane. The drop of the east bound through lane before the King Road intersection created additional safety issues at the intersection due in part to driver aggressiveness and inattention.

In September 2019, in response to local concerns regarding safety and speed, the US 4 eastbound travel lane was reconfigured into a center turn lane. It is understood that this is a short-term improvement to the corridor.

A corridor wide approach is necessary to address long term needs along the corridor. The 2019-2028 TYP contained funding for a series of corridor studies throughout the state to address issues on corridors of statewide importance. It is imperative that the US4 corridor, from the junction of I-393 through Epsom and Northwood, be included in the initial list of corridors to be examined. To supplement the future planning effort, the New Hampshire Ten Year Transportation Plan 2019-2028 included funding for a US Route 4 and King Road Improvement Planning Study beginning in 2020.

#### POTENTIAL MAIN STREET IMPROVEMENTS

Beyond the recommendations regarding the NH 28/Main Street/Depot Street intersection, the Community Design Charette identified potential changes to several locations along the Main Street Corridor. While the Community Survey did not show a great deal of support for the future conversion of Main Street from a NHDOT maintained road to a Class V town road, there are still a number of long term opportunities of improvements along the corridor to calm traffic and improve pedestrian facilities that could be proposed in coordination with NHDOT. The following is a summary of the potential changes.

Village Center: The Charette included a number of options to improve the Main Street/Center Rd/Canterbury Road intersection and adjoining areas. Options for the intersection include (1) a four way stop, or (2) an improved intersection that separates Center Road and Canterbury Road traffic without stopping traffic on Main Street. The installation of curb and sidewalks along with textured/colored pavement at the intersection as well as a midblock cross walk near town hall could signal that this is a special place. The use of a narrowed road section, textured pavement, lighting and attractive signage, and lowered speed limit at the approaches to the new Village Center would signal that this area is special and would act to calm traffic and divert regional traffic from the center of Town.

As a follow up to the adoption of the Town Center zoning district at 2019 Town Meeting (see the Land Use chapter), these improvements should spur small scale mixed use development adjacent to this intersection, slow travel speeds and reduce the attractiveness of the roadway as a cut-thru for regional traffic. Similar improvements could be extended a short distance up both Center and Canterbury Roads if conditions warrant.

Chichester Central School: Library Corner already acts to calm traffic by the 90 degree turn at this location, the addition of a central median/chicane, the addition of on-street angled parking in front of the library and the adjacent church, the opportunity to improve the two spur intersections of Main Street on both sides of the Library, together with the strategic use of landscaping, pavement texturing, and coloration could change this location from an exercise in high speed maneuvering to a community focal point.

Chichester Central School: The school is a major focus of community activity. At Chichester In front of the school the addition of a median, sidewalks, along with textured and colored pavement and strategically placed landscaping at approaches to school area would convey the impression that this is some place special and would function to slow and calm traffic. A pick up and drop off lane in front of the school and parallel to the street could also provide needed nighttime parking for events at the school. A sidewalk in front of the school would enhance the safety of persons using the school and the construction of an additional 240' of sidewalk southerly to Deer Meadow Road would create the opportunity for students to walk to school from this neighborhood. Long term it would be desirable to continue the sidewalk northerly to Parade Corner another 1,500 feet to further enhance the walkability to the school.

### **OBJECTIVES AND RECOMMENDATIONS**

#### **OBJECTIVE 1**

Preserve and enhance the US4 and NH 28 corridors by balancing mobility and access.

- → Support efforts to undertake an extensive corridor planning process for the US 4 corridor between I-393 and the Northwood/Nottingham town border.
- → Continue to participate in project planning related to the NH 28 and Main Street intersection improvements project currently scheduled for construction in 2025.
- → Continue to ensure that Chichester's transportation needs and priorities are adequately represented in the both the regional and statewide transportation planning process by

participation on the CNHRPC Transportation Advisory Committee and the New Hampshire Ten Year Plan update process.

#### **OBJECTIVE 2**

Ensure a safe, reliable and efficient system of local roads and bridges throughout Chichester.

- → Continue the work of the Chichester Roads Committee to annually update the Road Management Plan.
- → Continue to actively work with NHDOT to repair, replace, and/or upgrade bridges as needed.
- → Work to implement the Main Street Charette through infrastructure improvements which calm traffic and improve pedestrian and bicycle safety.
- → Evaluate roads that may be suitable for Scenic Road designation.

### **OBJECTIVE 3**

Minimize negative impacts from development on Chichester's transportation network.

- → As necessary, the Planning Board should seek transportation/traffic impact studies for new developments of a certain size or for developments located in areas where significant transportation problems are known to exist.
- → As a condition of the final approval of a Subdivision or Site Plan Application, the Planning Board, where appropriate, should require the developer to pay a proportionate share

of the costs of municipal transportation related improvements, which are necessitated in whole or in part by the development. At its discretion, the Board may require the developer to construct capital improvements, as an alternative.

→ As a condition of the final approval of a Subdivision or Site Plan Application, the Planning Board, where appropriate, should require the developer to provide highway improvements made necessary by the applicant's development, including but not limited to turning lanes and signalization at project entrances.

#### **OBJECTIVE 4**

Improve access to existing properties during road construction projects, redevelopment, or proposed expansions of existing businesses.

- → Incorporate access management provisions in both the Site Plan and Subdivision Regulations.
- → Consider the development of a US 4 Access Management Memorandum of Understanding (MOU) between the Planning Board and NHDOT District 5 to enhance coordination during the development review /driveway permitting process.
- → Require, when applicable, developers to provide rights-ofway and/or direct access to connect both new and existing developments.

→ As appropriate, promote connectivity through the requirement of local street connections between existing, new and future developments.

#### **OBJECTIVE 5**

Facilitate an expanded Town Bicycle/Trail network in Chichester.

- → Support the establishment of a Town Trails Committee or equivalent to assist in the implementation of potential trails as identified in the 2019 Suncook Valley Trails Plan and consider additions to the existing network of walking and snowmobile trails.
- → Consider the designation, as Class A Trails, of some of the Class VI roads within Town by working with abutting landowners and the Conservation Commission.
- → Consider the development of a Safe Routes to Schools (SRTS) Plan promote walking and bicycling to the Chichester Central School.

#### **OBJECTIVE 6**

Ensure that transportation options are available to all residents of Chichester regardless of socio-economic status.

→ Coordinate with surrounding towns within the region to study the potential expansion of the Concord Area Transit (CAT) fixed route bus system and the potential Concord to Portsmouth Inter-city Bus Service along US 4, including a potential park and ride location in Chichester. → Continue to promote the availability of the Mid-State Regional Coordinating Council (RCC) volunteer driver programs currently serving Chichester.